14 on the channel regions with the embedded layer 13 formed thereon. The transfer electrodes 15 may be formed in a double-layer structure in which clearances in the first-layer transfer electrodes 15 are covered with second-layer transfer electrodes. In a three-phase operation, first and second light receiving elements P1 and P2 each formed of three transfer electrodes 15 are set in the channel regions. In a channel region 16 in which the first light receiving element P1 is set, an N-type doped region 16 having a higher impurity concentration than the embedded layer 13 is formed opposite to the central transfer electrode 15. The channel region 16 is formed to prevent the information charge from escaping from the embedded layer 13 toward the semiconductor substrate 11, but may be unnecessary if the information charge can be securely held by only the transfer electrode 15.

On pages 15 and 16, rewrite the paragraph beginning at line 4 of page 15 and ending at line 3 of page 16, as follows:

When the information charges are accumulated in the channel regions, the transfer electrodes 15 are activated. Specifically, by raising the electric potential applied to the transfer electrode 15, a potential profile shown by a curve a is formed. Therefore, the information charges can be accumulated only to make up a difference between the minimum value of the embedded layer 13 and the maximum value of the diffusion layer 12. On the other hand, when the information charges are discharged toward the semiconductor substrate 11 instead of being accumulated in the channel regions, the transfer electrodes 15 are inactivated. Specifically, by lowering the electric potentials applied to the transfer electrodes 15, a potential profile as shown by a curve b is formed. Therefore, the information charges generated in the channel regions are discharged toward the semiconductor substrate 11 along a potential gradient. In the first image pickup operation, the transfer clock ϕf2 forms the potential shown by the curve a of Fig. 6, while the transfer clocks ϕf1, ϕf2' and ϕf3 form potentials shown by the curve b of Fig. 6. Additionally, in the second image pickup operation, the transfer clocks ϕf2 and ϕf2' form the potentials shown by the curve a of Fig. 6, while the transfer clocks ϕf1 and